

REMARKS

Claims 1 and 7 are pending in this application. By the present amendment, claims 1 and 7 are amended to clarify the invention. Claims 2-6 are canceled without prejudice or disclaimer thereto.

Rejections

In the Final Office Action dated April 28, 2004, the Examiner made the following rejections:

(1) Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2002/0056134 A1 to Abe (of record) in view of U.S. Patent No. 5,994,965 to Davis et al.

(2) Claims 2 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2001/0007151 A1 to Vorenkamp et al. in view of U.S. Patent No. 6,112,232 to Shahar et al. and Johannes.

(3) Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Vorenkamp et al. in view of Shahar et al. and Johannes and further in view of U.S. Patent No. 6,725,463 to Birleson.

(4) Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Vorenkamp et al. in view of Shahar et al. and Johannes and further in view of U.S. Patent No.5,930,696 to Tzuang et al.

(5) Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Abe et al., Vorenkamp et al., Shahar et al. and Johannes.

In view of the amendments and arguments that follow, Applicant respectfully traverses the Examiner's rejection of the claims.

Rejections Moot

Applicant respectfully submits that rejections (2)-(4) noted above are moot in light of the cancellation of claims 2-5.

Accordingly, withdrawal of the rejections of claims 2-5 is respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Abe in view of Davis

As noted above, the Examiner rejected claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Abe et al. in view of Davis et al. The rejection is respectfully traversed.

Applicant's amended claim 1 recites, *inter alia*, a cable modem tuner comprising an upstream circuit for transmitting a data signal to a CATV (cable television) station, wherein said upstream circuit includes a gain controllable gain control circuit receiving said data signal, at least one power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit, and a control circuit transmitting a control signal to said at least one power amplifying circuit for controlling transmission/interruption of said data signal.

With respect to claim 1, the Examiner alleged that the combination of Abe et al. and Davis et al. disclose the claimed invention as set forth in independent claim 1. However, the Examiner conceded that Abe et al. fail to disclose a gain controllable gain control circuit, and at least one power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit.

To cure the deficiencies of Abe et al., the Examiner imported Davis et al. and alleged that Davis et al. disclose a variable-gain amplifying circuit comprising a gain controllable gain control circuit (variable attenuator 25) for receiving a data signal, and a power amplifying circuit (high-power amplifier 330) power-

amplifying the data signal having been gain controlled by the gain control circuit.

According to the Examiner, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Abe et al. to include a gain controllable gain control circuit for receiving a data signal, and a power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit, for the purpose of automatically maintaining a predetermined overall gain in a cable modem upstream transmitter.

Applicant respectfully disagrees with this allegation. Applicant respectfully submits that neither Abe et al. nor Davis et al., taken singly or in combination, (assuming these teachings may be combined, which Applicant do not admit) disclose or teach an upstream circuit in a cable modem tuner including "a gain controllable gain control circuit receiving said data signal, at least one power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit, and a control circuit transmitting a control signal to said at least one power amplifying circuit for controlling transmission/interruption of said data signal," as recited in claim 1.

Abe et al. merely disclose inputting an upstream signal to a transmission processing section via input terminals to adjust the transmission signal at an optimal level. In Abe et al., the transmission processing section receives the signal and controls a gain by a variable gain amplifier. However, Abe et al. merely controls the gain in a variable gain amplifier and fail to correspond to a power amplifying circuit for power amplifying a data signal that is gain controlled by the gain control circuit.

Furthermore, applicant respectfully submits that the control signals inputted to the transmission processing section of Abe et al. is not analogous to an input control signal inputted to "at least one power amplifying circuit." Therefore, Abe et al. fails to disclose "a gain controllable gain control circuit receiving said data signal, at least one power amplifying circuit power-amplifying the data signal having being gain controlled by said gain control circuit, and a control circuit transmitting a control signal to said at least one power amplifying circuit for controlling transmission/interruption of said data signal," as claimed.

Furthermore, Davis et al. fails to cure the deficiencies of Abe et al. Instead, Davis et al. merely disclose a high power

amplifier that includes a variable attenuator for varying the amount of attenuation of a RF signal passing therethrough. In other words, in Davis et al., the RF output of the variable attenuator feeds to an input of the high power amplifier, which is used to amplify the RF signal input. If the gain of the high power amplifier increases causing a gain measured between the input of the variable attenuator and the high power amplifier to increase above a predetermined gain level, an analog controller increases the level of attenuation provided by the attenuator by adjusting the gain control voltage supplied thereto. However, even if the RF output of the variable attenuator feeds into the input of the high power amplifier in Davis et al., there is absolutely nothing in Davis et al. that disclose transmitting a control signal from a control circuit "to said at least one power amplifying circuit for controlling transmission/interruption of said data signal."

Moreover, applicant submits that the incorporation of Davis et al.'s variable attenuator and high-power amplification (as alleged by the Examiner) into Abe et al.'s cable modem is not obvious, because Abe et al. controls gain in a variable gain amplifier and not a power amplifier. As such, Abe et al. is not at

all concerned with power amplification. Hence, Davis et al. would not be inclined to use or seek guidance from Abe et al.

In view of the above reasons, Applicant respectfully submits that Abe et al. in view of Davis et al., taken singly or in combination, do not disclose the claimed invention of claim 1 and the rejection of claim 1 should be withdrawn.

**Rejection Under 35 U.S.C. § 103(a) Abe in view of
Vorenkamp, Shahar, and Johannes**

With respect to claim 7, the Examiner alleges that the combination of no less than four (4) references makes the claimed invention as set forth in claim 7 obvious. Specifically, the Examiner alleges that Abe et al., Vorenkamp et al., Shahar et al. and Johannes disclose the claimed invention as set forth in claim 7.

Specifically, the Examiner alleges that Abe et al. and Vorenkamp et al. disclose a cable modem tuner. The Examiner admits that Abe et al. fails to disclose the receiving unit including an up converter for converting the down signal to a first intermediate frequency signal of higher frequency, a SAW filter..., and a down converter.... (see final Office Action, page 6).

However, the Examiner alleges that Vorenkamp comprises a receiving unit for receiving a down signal from a CATV station (page 34, paragraph 404), wherein said receiving unit includes an up-counter (first mixed 506 and amplifier 514) for converting said down signal to a first intermediate frequency signal of higher frequency (page 7, paragraph 118), a filter for selecting the first intermediate frequency signal output from said up converter (band pass filter located between amplifiers 514 and 516), and a down converter (amplifiers 516 and 518, second mixed 508) converting the first intermediate frequency signal selected by said filter to a second intermediate frequency signal of lower frequency for output.

However, the Examiner further admits that Vorenkamp et al. fails to disclose that said filter is a SAW filter and said SAW filter is formed of an oscillation circuit including a print coil or an air coil. To make up for the deficiencies of Abe et al. and Vorenkamp et al., the Examiner alleges that Shahar et al. disclose a SAW filter for the purpose of lowering cost (col. 9, lines 4-6) and additionally, the Examiner alleges that Johannes discloses a SAW filter formed of an oscillation circuit (resonator) including a print coil (printed strip lines in Fig. 1a) for the purpose of providing high stopband rejection (col. 1, lines 4-5).

However, Applicant respectfully submits that neither Abe et al., Vorenkamp et al., Shahar et al. nor Johannes , either alone or in combination, discloses or teaches a cable modem tuner that includes "an up converter for converting said down signal to a first intermediate frequency signal output from said up converter, a SAW filter for selecting the first intermediate frequency signal output from said up converter, and a down converter converting the first intermediate frequency signal selected by said SAW filter to a second intermediate frequency signal of lower frequency for output," as recited in claim 7. Furthermore, the combination of cited art fails to teach or suggest at least one power amplifying circuit power amplifying the data signal having been gain controlled by the control circuit, as set forth in amended claim 7.

Again, Abe et al. merely arguably discloses a variable gain amplifier that controls the gain of an upstream signal. However, the variable gain amplifier in Abe et al. fails to correspond to at least one power amplifying circuit for power amplifying a data signal that is gain controlled by the gain control circuit.

Like Abe et al., Vorenkamp et al. also fails to disclose at least one power amplifying circuit for power amplifying a data signal that is gain controlled by the gain control circuit, as set

forth in amended claim 7. Thus, Vorenkamp et al. fails to make up for the deficiencies of Abe et al. Likewise, Shahar and Johannes also fail to at least teach or suggest the above noted feature.

As for Vorenkamp et al., Vorenkamp et al. merely disclose a dual or double conversion receiver that allows distortion and stability to be controlled when a received signal is first mixed to a first intermediate frequency and then mixed down to a second intermediate frequency (see page 7, paragraph 118). However, the mixed down to a second intermediate frequency of Vorenkamp et al. is a signal received from an amplifier and not from "a SAW filter." In other words, Vorenkamp et al. is completely silent about "a SAW filter for selecting the first intermediate frequency signal output from said up converter" and then converting the selected signal from the SAW filter by "a down converter" to a "second intermediate frequency signal of lower frequency for output."

As noted above, Shahar et al. fails to make up for the deficiencies of Abe et al. and Vorenkamp et al. Shahar et al. merely discloses a SAW filter being used to lower cost. However, the SAW filter in Shahar et al. fails to select a "first intermediate frequency signal output from said up converter" so that a down converter converts "the first intermediate frequency signal

selected by said SAW filter to a second intermediate frequency signal of lower frequency for output."

Moreover, Johannes fails to make up for the deficiencies of Abe et al. Vorenkamp et al. and Shahar et al. Johannes merely discloses a SAW resonator filter in mobile phones as an interfrequency filter for stopband rejection. In addition, Johannes fails to teach or suggest at least one power amplifying circuit for power amplifying a data signal that is gain controlled by the gain control circuit.

Applicant respectfully submits that not only does the combination of Abe, Vorenkamp, Shahar and Johannes fail to teach or suggest each and every feature as set forth in the claimed invention, but that the Examiner has also failed to establish a proper motivation for combining the four (4) references.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, the proposed modification of the prior art must have had a reasonable expectation of succeeding, as determined from the vantage point of a skilled artisan at the time the invention was made. Third, the

prior art references, when combined, must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

Applicant respectfully submits that from our review of the four (4) cited references, we find no teaching or suggestion to support the examiner's asserted motivation to combine the references.

Applicant respectfully submits that but for applicant's own disclosure of the specific elements involved, the applied references themselves would not have instructed one versed in the art on how to go about selectively reworking and modifying the teaching of Abe et al. with Vorenkamp, Shahar and Johannes to yield applicant's invention as set forth in claim 7.

Accordingly, applicant submits that the Examiner's rejection is predicated upon impermissible hindsight, and not upon a suggestion from the combination of the references applied that would have been derivable by one versed in the art from the references themselves.

At least in view of the above reasons, Applicant respectfully submits that the asserted combination of Abe et al., Vorenkamp et al., Shahar et al. and Johannes fail to establish a *prima facie* case of obviousness of independent claim 7.

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Accordingly, Applicant respectfully submits that the rejection of claims 1 and 7 should be withdrawn.

Conclusion

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three (3) month extension of time. Since an extension of one (1) month was previously requested and paid for on August 19, 2004 for filing a reply in connection with the present application, the required fee of \$870.00 is attached hereto.

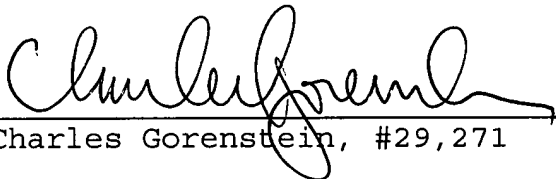
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Carolyn T. Baumgardner (Reg. No.41,345) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.


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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By 
Charles Gorenstein, #29,271


CG/DSS/CTB/mpe
0033-0785P

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

Attachment(s)

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